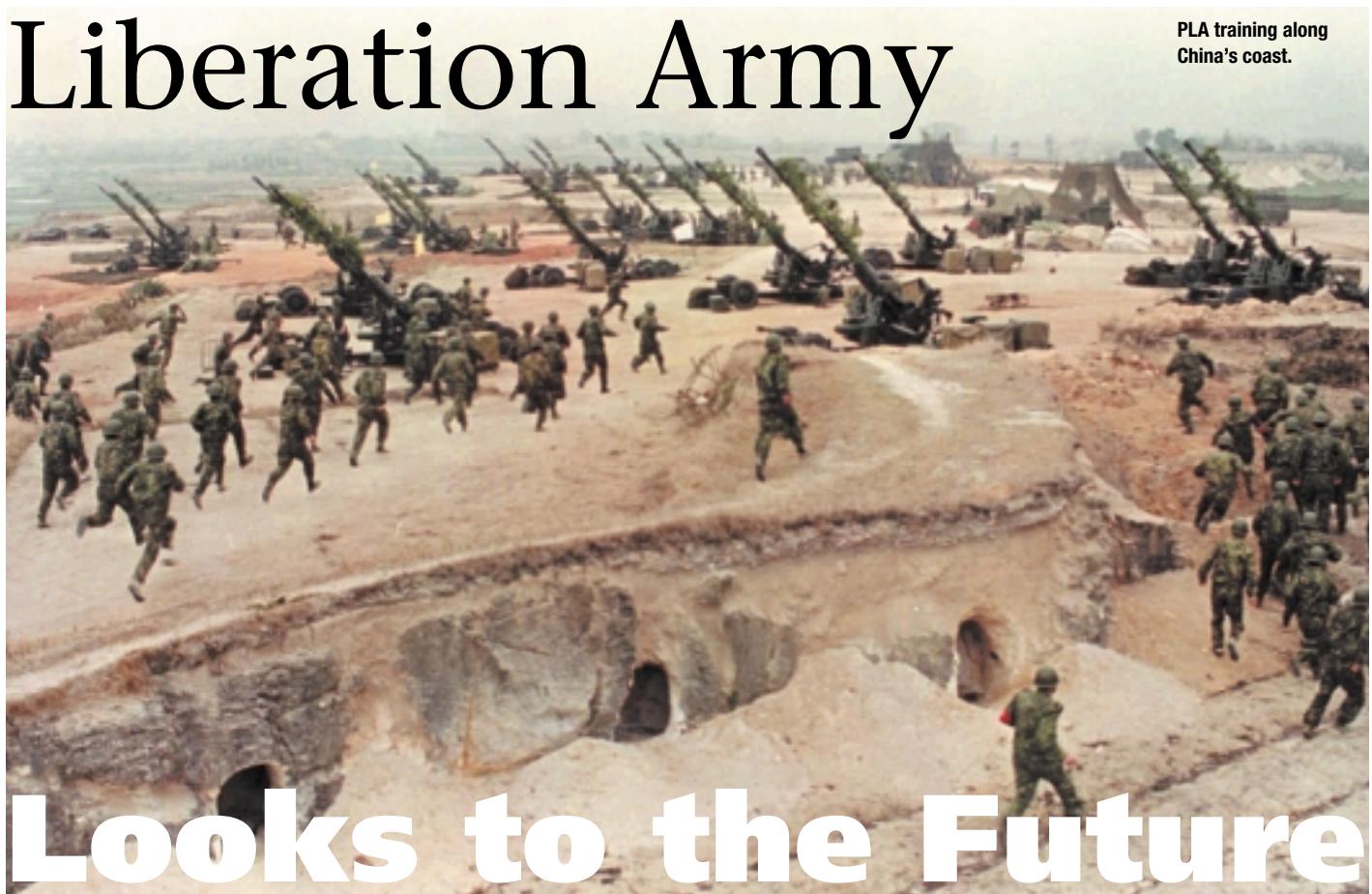


The People's Liberation Army

PLA training along China's coast.



AP/Wide World Photos (Xinhua)

Looks to the Future

By CHARLES F. HAWKINS

Western analysts have long known that Beijing is modernizing its armed forces; indeed the People's Liberation Army (PLA) is undergoing a transformation. Through innovation in doctrine, organization, and technology—the fundamental ingredients of a so-called revolution in military affairs (RMA)—China is pursuing a capability to allow “the inferior

to defeat the superior” with an eye fixed on the year 2030. This is an ambitious effort to undertake but by no means unachievable.

With the possible exception of the United States, China has analyzed the implications of RMA more than any other nation. Although the impact of modern weaponry was predicted by the Soviet Union in the mid-1980s, the wake-up call for the People's Liberation Army came with the Persian Gulf War. Stunned by the near dominance of American systems, which bested Soviet and Chinese equipment in the air and

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on the ground, the Chinese scrambled to understand what had happened.

In fact, Chinese analysts have been investigating high-tech warfare since the early 1980s as the Falklands, Becca Valley, and air strikes on Libya stimulated their interest. But their efforts did not gain support from the central government until more recently. China relearned the lessons of Desert Storm in the Taiwan Strait during 1996 when its forces did not perform well in bad weather, and U.S. naval forces operated at considerably longer distances with greater real-time data and effective military power. With the realization that they lagged at least a generation behind technologically, Beijing redoubled its efforts. Then, in 1999, NATO launched air strikes against Serbia which once more demonstrated the gap between China and the West.

American technology motivates Chinese research. Historical analysis, policy issues, and operations research, though important, are only of secondary interest.

Word and Deed

The Chinese make a distinction between a revolution in military affairs and a military revolution. They regard the former as a process that can be managed—and see America as somehow guiding the ongoing process well. The latter will come about when the RMA process is mature, perhaps in 15 to 30 years. It will be the revolution that actually changes the established order. Precision guided munitions and information dominance notwithstanding, China is preparing for this future. But it can't prepare everywhere or in all things equally. PLA thinking calls for picking its developmental challenges carefully and concentrating efforts prudently.

To meet this daunting task, Chinese analysts are gathering data from all available sources in the West. They feel the effort can't be focused until all possibilities are uncovered and understood. The effort is dynamic. Individual researchers focus on an array of topics.

People's Republic of China

Defense Budget: Estimated at \$14.5 billion for 2000; the gross domestic product in 1999 was \$732 billion (\$4,000 per capita).

Manpower: China, a nation of 1,255,000,000, has a total of 168,483,000 men between 18 and 32 years of age. Combined active and reserve strength is estimated at 3,070,000. Terms of service are two years, selective conscription. Active forces include some 1,000,000 conscripts and 136,000 women; reserve forces may total as many as 600,000 members (all services).

Armed Forces: The People's Liberation Army (PLA) includes five components (estimated active strength): ministry of defense staff/centrally-controlled units (130,000, not included elsewhere), strategic defense forces (100,000-plus), ground forces (1,700,000 soldiers) with some 7,060 main battle and 700 light tanks, naval forces (220,000 sailors) with 65 submarines (including 1 nuclear-powered ballistic-missile boat) and 60 principal surface combatants, 368 patrol/coastal craft, and 39 mine warfare vessels; some 5,000 marines; naval air with 25,000 personnel and 507 shore-based combat aircraft), and air forces with 420,000 members and over 3,000 combat aircraft.

Paramilitary Formations: People's Armed Police (1,100,000 members of internal security, border defense, guards, and other organizations).

Source: International Institute for Strategic Studies, *The Military Balance, 2000–2001* (Oxford: Oxford University Press for the International Institute for Strategic Studies, 2000).



Parade marking PLA founding.

Various American futurologists and strategists have influenced Chinese thinking on military affairs, according to Captain Zhang Zhaozhong. A member of the Naval Research Center, he cites the Tofflers, William Owens, and Martin Libicki, and says that the push of information technology on RMA has forced the PLA navy to accept that concepts drive platform decisions rather than the reverse. Zhang recognizes the "advantages and disadvantages of using commercial off the shelf technology." Its use promotes interoperability, he indicated, but "may make it easier for an enemy to exploit an opponent's systems."

First hand experience is also studied to explain the interaction between advanced weaponry and low tech procedures. The shootdown of an F-117 stealth fighter over Serbia during Operation Allied Force was examined by Shi Peixin. His explanation of the trap, using successive radar sets, short activation times, and communications linkage and processing at the final

Many are technological and others are more theoretical, while still others look at the impact of change on the People's Liberation Army and operational capabilities. In short their research extends to technology, doctrine, and organization, with a view to how these three areas will affect operational output.

SAM launch site, was both insightful and mathematically lucid.

Huang Haiyuang, a senior researcher who has traveled widely in the West, summarized seven PLA technological priorities:

- information operations and warfare
- air and missile technology
- precision guided munitions
- defensive weapon technology
- unmanned aerial vehicle technology
- military space technology
- naval carrier (air-to-ship integration).

Huang explained that the People's Liberation Army has embarked on a two-phased plan to scale down into a smaller, higher quality force while exploring new concepts and then to

the People's Liberation Army has embarked on a two-phased plan to scale down and focus on high technology applications

focus on high technology applications. The first phase is well along, though he added a concluding caution: "the individual is still the key in fast-paced warfare."

Emerging Capabilities

The Chinese are trying to catch up in a military competition that they know can't be won under ordinary circumstances. They are attempting to achieve extraordinary advantages with a few niche capabilities while treading water elsewhere. Can the People's Liberation Army accomplish stovepipe breakthroughs in key areas while maintaining others at minimal levels of acceptable performance? It remains to be seen, but the West should not discount such an effort.

Indeed, in some areas the Chinese have demonstrated exceptional advances. Missiles and artillery are their strong suit, as one American military colleague observed. After touring the country in 1996 and seeing firepower demonstrations and intercepts by surface-to-air missiles, he concluded, "the rest of the PLA's conventional forces are about where we were in the 1930s." The state of their rocket forces, however, suggests that this might not be

cause for complacency. China has leapfrogged past competitors before.

Chinese missile development owes much to Tsien Hsue-shen, a native born scientist who studied in the United States at CalTech and MIT, helped found the Jet Propulsion Laboratory, and worked on classified projects during World War II. On the eve of becoming an American citizen, Tsien got caught up in the Cold War hysteria of McCarthyism. Rejected by the nation he sought to adopt, he returned to China and became the undisputed father of its missile program.

Tsien's expertise was recently merged with an emphasis on computer technology. When the impact of the

Cultural Revolution wore off in the early 1980s, Beijing turned to the burgeoning computer market. Convinced that other countries such as the United States, Japan, and Singapore held an unsurpassable lead in hardware, China emphasized software development and hasn't been disappointed. For example, in the late 1990s Chinese military analysts and systems engineers took an unclassified tour of a suite of simulations at a federally funded research and development center in the United States. This past year it was reported that a similar suite had been

built in Beijing: "It wasn't the equal of ours, but it was very impressive by any standard. And they did it in a year."

Although technology is highly important, it isn't the only thing that occupies PLA planners. They need something to bridge the gap between today and their vision of 2030. That something is found in the domain of doctrine and organization.

Landpower. Over the past 15 years there has been significant change in the way PLA forces operate in the field. Before rapprochement with the Soviet Union in the 1980s, its forces on the northern frontier altered their defensive posture from forward deployed to arrayed in depth and were thus better able to absorb and defeat a Soviet offensive before it could reach the industrial area around Beijing. Making this doctrinal shift came not from advanced technology but from doubling ground transportation assets in frontline divisions. Increased battlefield mobility was key and has become the new cornerstone of land operations.

Seapower. The PLA navy has been reinventing itself since the early 1980s. Of the navies in Asia, it has the most manpower with an afloat tonnage and number of combatant ships rivaled only by Japan, with India and Taiwan a distant third and fourth. In the decade before 1993, China increased



AP/WideWorld Photos/Xinhua



PLA guided missile destroyer.

its surface combatant ships by a factor of two and its mine warfare and support vessels by a factor of six, for the highest afloat-support ratio in Asia.

change has enabled the PLA navy to alter its maritime strategy from coastal defense to limited power projection

During the same period amphibious lift capacity stagnated and the number of submarines fell by half.

The afloat support ratio has great significance. At .63 front line support vessels to every principal surface combatant, it is three times greater than Australia, the nearest regional competitor. A high afloat support ratio indicates a capability to conduct long-term, long-range operations. And a level of .20 or better signifies good sustainability while .10 or less is poor.

Since the mid-1990s the Chinese have concentrated on amphibious lift. Organizational changes, although beneficiaries of technology, were not predicated on it. They would have happened in any event,

and change has enabled the PLA navy to alter its maritime strategy from coastal defense to limited power projection and sustainability.

China has eschewed an aircraft carrier capability. Although it would be a source of national pride, such a costly platform is something it chooses to defer. PLA would be hopelessly out-classed by the United States for the foreseeable future and, given increasingly sophisticated unmanned aerial vehicles, future carriers may be quite different. Furthermore, the immediate areas of interest are the littorals, and the East and South China Seas—areas where operations can be facilitated by land-based aircraft and missiles.

Airpower. We have also seen changes in the air and airborne forces, notably the ability to transport troops rapidly anywhere within national borders. In addition to establishing a division-sized rapid reaction force, other army units have conducted brigade-sized experiments in high-tech warfare.

Current and Future Concepts

The main difference between approaches to warfare is that the United States tends to focus on systems and processes while China keys on objects, or the *object-space of war*. Americans believe they will dominate any object-space in battle if they get the processes right and employ the better systems. But Chinese theorists focus on the object first and use that knowledge to define the systems and processes to achieve success. As a superpower we have the luxury of affording our approach; for efficiency they have no choice but to follow theirs.

Senior Colonel Chen Bojiang studied for a year in the School of Diplomacy at Georgetown University on a Ford Foundation grant. He has published two books since returning to his post at the Academy of Military Sciences in June 1998, both researched during his American stay. These have made him a celebrity in Chinese military circles.

One of Chen's themes is research on high-tech warfare, which he notes has the "feature of variety." He claims that of its patterns "warfare has reached a new phase, namely, forming a cubic warfare with land, sea, air, and space closely combined." Together with the electromagnetic spectrum, these are the object-space to be dominated. Loosely defined, cubic warfare might be seen as the rationale for Chinese joint operations.

Chen's analysis, like that of many of his fellow analysts, often turns to information warfare and operations: "High-tech warfare has the feature of information confrontation." The command, control, and intelligence system "is the prerequisite not only for hard weapons to play a role, but it is also the target first attacked by the opposing side in war. The main [feature] is pluralistic confrontation, including the acquirement and anti-acquirement, control and anti-control, as well as usage and anti-usage of information."

Although this may not be regarded as particularly earthshaking, Chen's analysis leads him to insights into how the People's Liberation Army may conduct itself in the future. Citing the three warfares—mobile, positional, and guerrilla—Chen has asked rhetorically: Should high-tech warfare operations be protracted or quick? The answer seems obvious to many in the West. Not necessarily in China, however.

A great historic strength has been a large landmass. Combined with a vast population from which to draw fighters, that has meant China can conduct protracted wars—mobile, positional, or guerrilla. The ultimate successful protracted conflict is the absorption over many generations of an

initially victorious invading army. Chen believes this is no longer the case. No enemy would "let themselves so easily be involved in a protracted war with China," though China might be defeated, because of the excessive cost of campaigning. Moreover, given overall Chinese strategy, "It is also unacceptable to have a protracted war. Under the conditions of new history, the main task of the country is to carry out the economic construction . . . military actions must be [quickly accomplished in] scope and time." Chen wraps up the argument stating that "attack as the main resort has an extraordinary importance on the high-tech battlefield."

Another survey of future warfighting concepts appeared in 1998. *Unrestricted Warfare* by Senior Colonels Qiao Liang and Wang Xiangsui is widely read in military circles within China and has attracted attention in the West for urging multiple means—military and nonmilitary—to strike the United States. Hacking into Web sites, targeting financial institutions, committing terrorist acts, using the media, and conducting urban warfare are among the methods proposed.

In an interview that appeared in June 1999 in *Zhongguo Qingnian Bao*, a daily newspaper published by the Communist Party Youth League, Qiao noted "the first rule of unrestricted warfare is that there are no rules, with nothing forbidden." He argues that "strong countries make the rules while rising ones break them and exploit loopholes. . . . The United States breaks [U.N. rules] and makes new ones when these rules don't suit . . . but it has to observe its own rules or the whole world will not trust it."

Questioned about *Unrestricted Warfare*, other PLA officers were quick to point out that its ideas had no official status and did not represent the doctrine of either the military or government. A pat answer or indicative of divided thinking inside the People's Liberation Army? Perhaps both.

Qiao and Wang have written that "one war changed the world," and rightly or wrongly that technology is found at the heart of that change. As proof they indicate that "it is only necessary to cite the former Soviet Union,

the Balkans, cloning, Microsoft, hackers, the Internet, the euro, the Asian financial crisis, as well as the world's final and only superpower—the United States. These are sufficient. They pretty much constitute the main subjects on this planet for the past decade."

One should not be surprised that some analysts try to understand and explain the success of American military technology in their own terms. Nor is it amazing that lacking the wherewithal to compete technologically in the near term these analysts would propose alternate views on doctrine and organization to counter a potential U.S. threat. But there is a caution. Some Chinese defense analysts also are guilty of altering the evidence and making selective use of data to suit themselves or the Communist Party. Some interpretations are so patently flawed that one wonders if rhetorical analysis has reached a new plane. This is all the more reason to insist on transparency in peacetime interaction.

JFQ

Research on this article was facilitated by the author's contacts with Chinese defense analysts over the last decade. In recent years he has both lectured at the China Defense Science, Technology, and Information Center and co-hosted the Sino-U.S. Military Development's Workshop in Beijing.